REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-60 are in this case. Claims 1-53 have been previously canceled. Claims 54-60 have been rejected. Claims 54-60 have now been canceled. New claims 61-66 have now been added.

Rejections

The Examiner has rejected claim 56 under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirements. The Examiner asserts that the claim contains the phrase "wherein said viable plants are male fertile" which is a new matter not described in the specification.

The Examiner has rejected claim 55 under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirements. The Examiner asserts that the claim contains the phrase "vegetative plant tissue" which is a new matter not described in the specification.

The Examiner has rejected claims 54-60 under 35 U.S.C. 112, first paragraph. The Examiner asserts that the specification does not reasonably provide enablement for methods of using streptavidin-encoding constructs without a secretion signal sequence or streptavidin with the processing sequences to transform plants, plants to obtain, or methods of mitochondria transformation with a construct encoding streptavidin.

The Examiner has rejected claims 54-56 under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 5,962,769. The Examiner asserts that the reference teaches transformation of plants with a nucleic acid comprising a sequence encoding a signal sequence for secretion and a sequence encoding a biotin-binding protein, expressed from an anther-specific promoter or the constitutive ubiquitin promoter. Such expression leads to male sterility because of degeneration of tissue and would result in control morphology and development of the plant.

The Examiner has rejected claims 54-56 and 60 under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,962,769 in view of U.S. Pat. No. 5,689,041. U.S. Pat. No. 5,689,041 teaches a method of effecting degeneration of somatic plant

tissue by transformation with a nucleic acid comprising construct encoding a toxin protein operably linked to a plastid or mitochondrial targeting sequence, such that the toxic protein is expressed in plastids or mitochondria. The Examiner asserts that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of effective degeneration of somatic plant tissue taught by U.S. Pat. No. 5,962,769 to target the protein to the plastid as described in U.S. Pat. No. 5,689,041.

The Examiner has rejected claims 54-56 and 59 under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,962,769 in view of U.S. Pat. No. 5,530,191. U.S. Pat. No. 5,530,191 teaches a method of effecting degeneration of somatic plant tissue by plastid transformation with a nucleic acid comprising a sequence of a toxic protein, including a RNAse, a protease and a DNAse, such that the toxic protein is expressed in plastids. The Examiner asserts that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of effective degeneration of somatic plant tissue taught by U.S. Pat. No. 5,962,769 to express the protein in the plastid as described by U.S. Pat. No. 5,530,191.

Following a phone interview conducted with the Examiner on August 3, 2004, Applicant has elected to cancel all pending claims and add new claims 61-63 which were drafted according to the guidelines provided by the Examiner during the phone interview.

New claims 61-63 include limitations of now Canceled claims 54-60 which pertain to the specific tissue degenerated. New claims 61-63 also include limitations which pertain to use of a secretion signal sequence in the expressed streptavidin. As agreed upon in the phone interview, these limitations were deemed sufficient in traversing the enablement and prior art rejections.

In addition, Applicant has elected to introduce new claims 64-66 which relate to a method of generating a plant having a seedless fruit. These claims are similar to claim 62 but are devoid of the limitation of expressing streptavidin under the transcriptional control of a root specific promoter. Applicant is of the strong opinion that this claim is allowable for the reasons set forth below.

While reducing the present invention to practice, the present inventors postulated that depletion of biotin in embryos of plants would generate seedless

fruit. Accordingly, the inventors chose to utilize the Tob promoter in order to direct the expression of heterologous streptavidin in embryonic cells in their early developmental stages (see page 10 lines 7-11 of the instant application reciting: "FIG. 8 depicts tomato seed development in a tomato fruit of a control plant (C) relative to seedless fruits obtained from transgenic plants expressing various streptavidin levels under the control of the Tob promoter, which is known to direct gene expression in early embryonic developmental stages."). It should be appreciated that Tob promoter has also been described in the art at the time the invention was made as a "root specific promoter" (see, for example, Yamamoto *et al.*, Nucleic Acids Research 18:7449, 1990; and Yamamoto *et al.*, The Plant Cell 3:371-382, 1991). The root and embryonic tissues are both uniquely characterized by including rapidly dividing meristematic cells. This fact along with the fact that the Tob promoter is shown to be active in both root and embryonic tissues, indicates that promoters which selectively function in root tissue (namely root-specific promoters) can also be utilized for directing gene expression in embryonic cells.

The capacity of root specific promoters to function in embryonic cells has been known in the prior art prior to the time the invention was made. For example, Kyozuka *et al.* (Molecular and General Genetics 228:40-48, 1991) reported that the maize alcohol dehydrogenase 1 (Adh1) promoter is strongly induced in roots as well as in embryo meristem of transgenic plants. In another example, Benfey *et al.* (EMBO 8: 2195-2202, 1989) reported that expression from domain A of CaMV 35S promoter is strongest in the radicle pole of the embryo and in root tissue of seedling and mature plants.

In addition to the above, the present invention also teaches use of tissue specific (e.g., meristem) or developmental specific promoter in generating seedless fruit (see, page 26 lines 1-21 of the instant application).

Numerous embryo/meristem specific promoters were known in the art at the time of filing of the present invention. Examples include, the pea PAL promoter (Kwamata et al., Plant and cell physiology 38: 792-803, 1997), the CHS8 promoter (Schmidt *et al.*, Plant Cell 2:619-631, 1990), the acid chitinase gene promoter (Samac *et al.*, Plant Mol. Biol. 25:587-596, 1994), the barley Myb promoter (Wissenbach et al., Plant Journal 4:411-422, 1993) and the promoters described by

Conkling *et al.* (Plant Physiol. 93: 1203-1211, 1990), Xu *et al.* (Plant Molecular Biology 27:237-248, 1995), Hoff *et al.* (Physiologia Plantarum 82:197-204, 1991), Brearsd *et al.* (The Plant Journal 1:235-244, 1991), Mijnsbrugge K. Vander (Plant and Cell Physiology 37: 1108-1115, 1996), Feuillet C (Plant Molecular Biology 27: 651-667, 1995) and Mudge and Birch (Australian Journal of Plant Physiology 25: 637-643, 1998). Examples of prior art meristem/embryo specific promoters include the soybean heat shock (hs) promoter (Brandl et al., Plant Molecular Biology 28: 73-82, 1995), the spinach rps22 promoter (Li et al., Plant Molecular Biology 28: 595-604, 1995), the rice PCNA promoter (Kosugi *et al.*, Plant Journal 7: 877-886, 1995) and the cyc07 gene promoter (Ito et al., Plant Molecular Biology 24:863-878, 1994).

Thus, it is Applicant's strong opinion that the instant application teaches use of several types of promoters (root, meristem and embryo specific promoters) which can be utilized by the method of generating seedless fruit of the present invention.

Therefore it is respectfully submitted that claims 61-66 are now in condition for allowance. Prompt Notice of Allowance is respectfully and earnestly solicited.

Respectfully submitted,

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Date: August 17, 2004